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ABSTRACT

This guide was developed to help administrators and educators plan and implement videoconferences and credit courses using the Iowa State University studios (WOI). In a short narrative format, the guide leads the reader through the videoconference or course process. The guide is organized in three sections. The first section presents an overview of the process, including information on what videoconferencing is, the signal path, the transponder, the studio, return audio, the "footprint"--the area covered by a satellite's signal, live versus videotape programs, and downlink arrangements. The second section explains how to get started. Topics covered are making the initial contact, scheduling, marketing your event, and planning the budget. The final section covers planning for effective satellite-delivered instruction. The guide ends with a "start-to-finish" checklist to help the reader plan a teleconferencing project. (KC)

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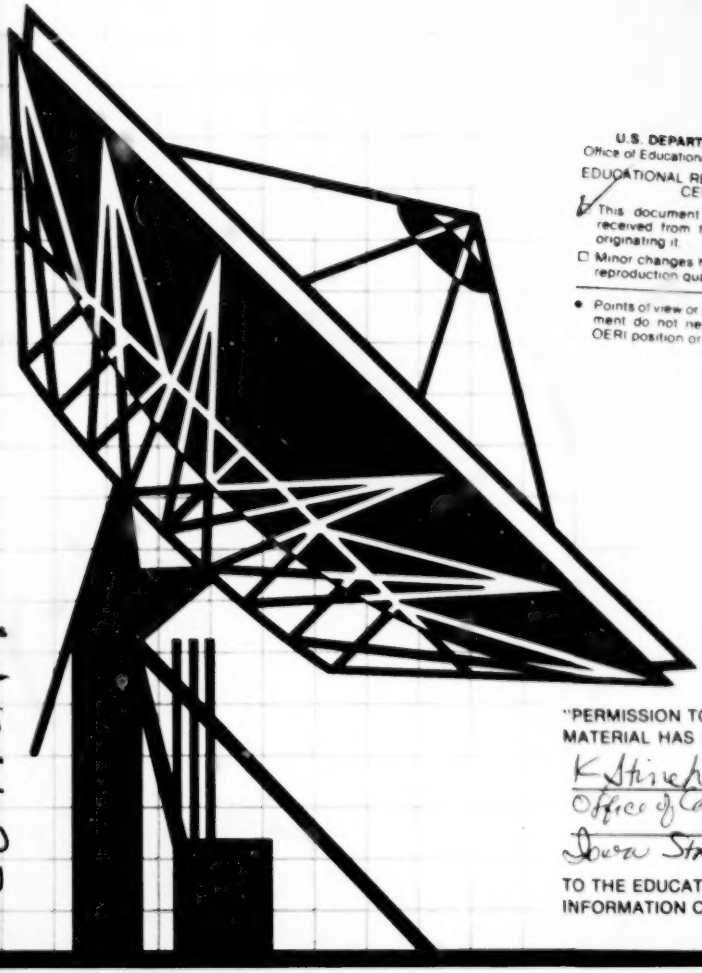
Originating Conferences and Credit Courses

Using WOI Satellite Transmission

A Basic Guide



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Overview

What is Videoconferencing?
Most of us are familiar with what audio teleconferencing is: a meeting held by telephone. Satellite videoconferencing takes teleconferencing several steps further. It brings people together via television. A satellite videoconference sends video pictures and sound from an orginating facility called an "uplink" to receiving, or "downlink," sites. Satellite videoconferences can include live presentations, videotaped material, or a combination of both. Most videoconferences also include arrangements for "return audio." This process allows participants at the receiving sites to "talk back" through telephone lines to the instructor or conference presenters they see on the television screen.

The Signal Path

Videoconferencing is carried on a "signal." The signal originates with a television camera recording and transmitting continuous pictures and sounds of the event. This signal then travels from the camera to the uplink facility.

A satellite uplink facility is capable of sending video, audio, and/or data signals 23,000 miles into space to one of several fixed-orbit communications satellites. The satellite boosts the signal and sends it back to earth in a "sprayed" pattern. This pattern makes it possible to cover an area as large as the United States with the same signal.

Satellite dishes ("downlinks") receive the signal, refocus it, and boost it again. The signal then runs through a cable to a television set or monitor where participants view it. The audio signal generally follows the video signal on the same path.

Return audio—the voice connection from the receiving site to the studio—is handled differently. Return audio generally uses telephone lines to make its way from participant back to presenter. Return audio is discussed more fully in the *Return Audio* section.

The Transponder

Communications satellites are capable of receiving and retransmitting numerous signals at the same time. The multiple elements of the satellite receiving and sending signals are called transponders.

In order to use a communications satellite for a videoconference, one must rent a transponder. This process is described in *Section III—Procedures*. Transponder rental fees vary, depending upon the time of day and the day of the week they are being used. In general, weekend and evening hours are more expensive than daytime hours.

Transponder time generally costs about $200 per hour. The specific charge for your event will be determined when you actually reserve the transponder. There is an hourly fee for the use of the uplink as well. WOI rents its uplink for about $115 per hour.

The Studio

At present, satellite videoconferences originate in the WOI studios. Professionally equipped and staffed by trained personnel, WOI is situated near the uplink itself. WOI studio time currently costs about $100 per hour.

When ISU's fiber-optic campus telecommunications system is fully activated, it will be possible to use other campus locations as originating studios as well. In theory, any campus room with a television camera could be used as a studio for this purpose. In reality, however, satellite broadcasting will probably be confined to those facilities with higher resolution television equipment and sufficient lighting.

The Engineering Annex classroom/studios and the Media Resources studios are examples of campus locations likely to be suitable for videoconferencing. When other campus studios are used, there will be a fee for using the fiber-optic transport system. Those fees have not yet been established.

Return Audio

Return audio is the primary characteristic distinguishing satellite videoconferencing from instructional broadcasting. Return audio allows participants and presenters to interact.

The simplest and most often used arrangement for return audio is "call-in" audio. In this arrangement, the receive sites have a telephone number connecting them with the studio. Participants may use the number to phone in their questions and comments. There are several ways to use the call-in system, depending upon the structure and format of the presentation. Questions may be phoned in at any time during the videoconference, or they may be phoned in at specified times in response to a cue from the on-camera presenter. WOI has a toll-free telephone number available for this purpose.

Call-in questions are generally recorded by hand on note cards and given to the conference presenter at convenient times during the videoconference.

A slightly more complex call-in arrangement involves routing phone calls directly into the studio. The caller's voice and question can then be heard by all who are viewing the videoconference.

The most complex return audio arrangement is called "bridged" audio. Bridging links multiple telephone lines in constant, live contact. With bridged return audio, participants can make comments or ask questions at any time during the videoconference. Often microphones are set up at receive sites for this purpose. The return audio telephone lines are connected to the studio and remain on throughout the program. Bridged return audio is more interactive than call-in audio, and more closely approximates the face-to-face classroom situation.

Up to three phone lines (two at receive sites and one in the studio) can be bridged through ISU's telephone system. The Regents Telebridge System can bridge return audio for up to 19 sites. In order to bridge more than 19 sites, you can arrange to link the Regents Telebridge System with AT&T bridges or other commercially available bridges.

When planning a videoconference, keep in mind the expense of the bridged return audio. Although the Telebridge system does not charge for the bridging service itself, regular long-distance charges are generated for each telephone line being bridged to the originating studio. These charges can add up quickly. You should use an average of $15 per hour per phone line as a planning guide.

Ironically, telephone-line costs reverse the pattern of transponder rental costs. Telephone lines are generally most expensive during daytime hours and cheaper at night and on weekends.

Cost, as well as the number of questions and comments you expect from participants, can help you chose the most appropriate type of audio for your event. If you must keep costs low, or if you expect relatively few questions and comments, call-in audio may be a better choice.

The "Footprint"

Communications satellites distribute video and audio signals over large geographical areas. The area covered by a satellite's signal is called its "footprint." Footprints can cover many states and even entire countries. Consequently, by selecting a transponder whose footprint corresponds with the geographical area of your anticipated audience, you can originate satellite videoconferences on a regional, national, or even international basis.

As you select the distribution area for your videoconference, take into consideration the complexity of the arrangements that must be made at the receive sites.

For example, a department originating a credit course by satellite may require that people from its own department travel to sites to serve as exam proctors. For this type of videoconference, regional distribution could be both financially and logistically prohibitive. The actual distribution area would probably be much smaller than the satellite's footprint.

Videoconferences requiring less university control and less expense at the receiving end lend themselves more readily to wide geographical distribution.

The size of the distribution area can affect the strategy for and expense of marketing an upcoming event. Furthermore, a larger distribution area will probably increase the potential number of participants for the videoconference. Weigh these and other factors carefully as you select the size of your distribution area.

Live vs. Videotape

Live presentation makes possible the interactive question-and-answer aspect that is videoconferencing's unique advantage. However, while virtually all videoconferences are live for a significant portion of the time, many use videotaped material for a part of their presentation.

Material may be pre-taped specifically for a videoconference, but that option may be too costly for your event. Rather, you may wish to do the entire production live. As an alternative to specially produced material, you may have material already on videotape which is appropriate for a portion of the presentation. The decision to "go live" or to use a combination of taped and live presentation is an important part of the course or conference planning process.

In general, it is wise to record on videotape each satellite videoconference program you deliver. This protects you in case of equipment failure. Receive sites that fail to receive the signal can receive as back-up a copy of the videotaped broadcast. By taping the presentation, originators can view their work and learn from it.

Videotaping also permits other arrangements, including the rental or sale of the tapes. Where applicable, copyright and royalty arrangements used with university print materials are in effect for videotaped material as well.

Downlink Arrangements

Downlink arrangements are generally handled in one of two ways: The participants take responsibility for the arrangements, or the university takes the responsibility. The choice will usually depend upon the nature of your potential audience.

For example, in the fall of 1986, the ISU Department of Computer Science delivered courses via satellite to a number of corporate sites in Iowa. In this case, the participants—the corporate sites—were responsible for the downlink arrangements. The downlink sites were required to provide a satellite receive dish, videotape equipment with play-back capability, and conference telephone capability in the viewing room. Arrangement for the downlink facility was part of the overall cost to the corporate entities receiving the computer science courses.

On the other hand, ISU made the downlink arrangements for a series of College of Agriculture courses in the spring of 1986. These courses were designed primarily for individual farmers and agribusiness people. ISU made the arrangements for downlinks with area community colleges and area extension offices. These downlink sites were listed in the course promotional brochure so that potential students could identify their nearest attendance center. Students could also arrange to use their own backyard receive dishes. The downlink costs, including space and equipment rental, were included in the total budget for the project and recouped through course fees.

Getting Started

Making the Initial Contact

The first step in planning your videoconference event is to contact your college coordinator of continuing education. A list of those individuals is on the inside back cover of this handbook.

Your college coordinator and staff in the Office of Continuing Education will help you plan your videoconference. They can help you create an effective instructional design, prepare an appropriate marketing strategy, handle scheduling and production details, and develop a budget that will accurately reflect the needs of your project.

You should come to your initial meeting prepared to discuss the estimated length of your program, the dates and times you would like it held, the type of return audio arrangements appropriate for your situation, and the general area you anticipate serving.

Careful planning of each of the elements of your videoconference help to ensure the success of your event.

Scheduling

Begin planning early. Scheduling personnel, transponder, studio, and uplink time, as well as identifying downlink sites and arranging audio bridges, is a complex process. The college coordinators and Office of Continuing Education staff will handle the scheduling details. Be sure your initial contact with them provides ample time to secure the arrangements that will provide you with the best possible situation for your event.

Marketing Your Event

Effective marketing can mean the difference between success and failure of your videoconference event. Your marketing plan should fit your potential audience, your conference or course content, and your budget. Some of the marketing tools you should consider include direct mail brochures, fliers, posters, display ads in newspapers or journals, news releases, public speeches, and radio announcements. Most effective marketing strategies select a variety of approaches that combine to fit the needs of the specific program. The professional staff of the Office of Continuing Education works closely with departments to develop a marketing strategy designed especially for each program.

Effective marketing requires sufficient time for planning and execution. A statewide videoconference requires at least six months' marketing time; marketing for a regional course or conference will take about nine months. If you are planning a national project, plan to spend at least a year marketing it.

Planning the Budget

The following is a sample budget designed to help with your planning. Note that the budget includes a contingency category. Flexibility is extremely important when planning an event as complex as a videoconference. It is important to build into your budget the ability to make minor alterations in approach, time, and content as the project progresses.

Sample Budget

I. Income

A. Sources
1. Registration
(number × fee) _____
2. Special assessment
(number × assessment) _____
3. Outside support
(organization/agency) _____
4. Other _____
Estimated Income _____

II. Expenses

A. WOI
1. Uplink system
(____/hr. × no. hrs.) _____
2. Transponder time
(____/class × no. classes) _____
3. Studio use
(____/class × no. classes) _____
4. Post-production _____

B. Downlink Sites
1. Rental charge
(____ sites × cost/site) _____
2. Operator
(____ sites × cost/site) _____

C. Videotapes
1. ¾" master tapes
(____tapes × $25 [est.]) _____
½" VHS Maximum ($8)
2. Reproduction of tapes
(____ tapes × $____/tape) _____

D. Publicity
1. Brochure development _____
2. Postage for publicity _____
3. Extra printing _____
4. Other _____

E. Conference/Course Materials
1. Visual aids _____
2. Handouts/notebooks _____
3. Exams _____
4. Postage for mailing _____
5. Exam proctors
(for credit courses) _____

F. Communication
1. Telephone for general use _____
2. Telephone for video-
conference interaction _____
3. Faculty _____

G. Miscellaneous Expenses _____

H. Subtotal _____

I. Contingency (10% of
estimated cost) _____

J. Services from the
Office of Continuing Education
(20% of the subtotal (H)) _____
Grand Total Expenses _____

Income _____
minus Expenses _____
equals Balance _____

Planning for Effective Satellite-Delivered Instruction

It is important to consider and plan for the differences in classroom instruction and video instruction when developing courses for videoconferencing. Satellite transmission time is relatively expensive and should be used efficiently for the most important instructional elements of the course.

Look carefully at the content and materials you will be using in the course. Those concepts which lend themselves to written material should be prepared in handout form, prepackaged, and distributed in advance of the videoconference. Those concepts which are more abstract and lend themselves to discussion and interaction should be reserved for the live presentation time.

Find out ahead of time what your audience knows about the topics to be covered in the course. Pre-presentation surveys and assessments will help you establish the participants' familiarity with the subject. You can use this information to prepare the material in your handout packets and to refine your on-air presentation.

Make the most of your air time. Television instruction is a very different medium from classroom instruction—it should be approached with an eye to its special dynamics. WOI personnel can help you plan for the different demands that will be made on your presentational style. They can help you adjust your use of lecture, questioning, demonstration, and other instructional techniques.

Plan to include a syllabus or notebook in the pre-presentation packet that includes the program content, agenda, names of presenters, references, and, in the case of credit courses, information about examinations and grades. By doing this, you can conserve valuable on-air time for the critical elements of your presentation.

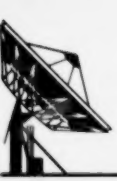
In those cases where immediate feedback is not available, instructors need to develop a presentational method that allows students to "get it the first time." This process can be greatly enhanced by the careful use of handout materials, worksheets, visual aids, and written instructions. These support materials need to be carefully planned and available in advance.

Full two-way (bridged) audio provides a more involved, interactional environment. In this situation, be prepared to elicit and manage feedback from all participants or sites. By drawing on the resources and ideas of all the participants you increase the value of the course.

Two-way audio requires careful planning. Instructions and suggestions for participation should be included in the participants' pre-packaged materials. The instructor needs to plan for constructive ways to include interaction in the instructional process.

If your event is a large conference, consider scheduling question-and-answer periods at specific times during the program. This strategy allows both for appropriate interaction and for uninterrupted presentations.

Finally, consider having on-site leaders at your downlink locations who can facilitate the local discussion and respond directly to questions after the broadcast portion has concluded.



Your Start-to-Finish Checklist

It may be helpful to use this checklist to identify the elements of your planning process and to develop a time line for your project.

Comple-ted by **Activity**

I. Course and Instructor/ Presenter Selection

_____ A. Select courses that will attract large audiences and lend themselves to teleconferencing

_____ B. Select instructor(s) with a desire to present via television

II. Initial Planning

_____ Meet with college coordinator and/or Office of Continuing Education Staff

III. Budget Preparation

_____ A. Project the enrollment

_____ B. Estimate expenses

_____ C. Obtain additional financial support if necessary

_____ D. Submit budget to the Office of Continuing Education for approval

IV. Logistical Arrangements

A. Arrange WOI scheduling and fees

_____ 1. Studio

_____ 2. Uplink

_____ 3. Transponder

B. Arrange downlink scheduling, fees, and coordinator

_____ 1. Extension network

_____ 2. Community college system

_____ 3. Public sites (motels, banks, etc.)

_____ 4. Private owners of downlink equipment

V. Marketing Arrangements

A. Coordinate with the Office of Continuing Education

_____ 1. Course information

_____ 2. Satellite details

_____ 3. Registration arrangements

_____ 4. Receiving sites organization

_____ 5. Appropriate marketing strategy selection and execution

_____ B. Develop instructions for site coordinators

VI. Instructor/Presenter Preparation

A. Have instructor meet with WOI staff

_____ 1. Instructions on preparation

_____ 2. Instructions on delivery

_____ B. Prepare course outline

_____ C. Provide assistance with first class session or at beginning of the conference

VII. Audience Questions Arrangements

A. Choose one-way (call-in) systems—toll-free, simple arrangement

_____ 1. Break time to receive calls

_____ 2. Transparencies to project questions

_____ 3. Individual to receive telephoned questions and prepare them for presenter

B. Two-way (bridged) communication

_____ 1. Office of Continuing Education for assistance with logistical details

_____ 2. Telebridge hookup at studio and downlink sites

VIII. Videotape Follow-up

_____ A. Provide ¾" videotape cassette for back-up

_____ B. Provide ½" videotape cassette for duplication

_____ C. Duplicate ½" videotape

D. Send tapes to site coordinators or appropriate individuals

_____ 1. UPS—overnight service

_____ 2. Parcel post—3-4 day service

IX. During the Course or Event

_____ Communicate with the instructor, participants, and site coordinators to keep on top of any problems that arise

X. Closure

_____ A. Make final examination arrangements for credit courses

_____ B. Provide evaluation instrument for participants and instructor

_____ C. Send instructor/presenter and site coordinator appreciation letters

_____ D. Pay expenses

_____ E. Prepare financial report

_____ Prepare and circulate final report, including finances, organization, conference/course evaluation and suggestions

College Coordinators of Continuing Education

Agriculture—Harold Crawford, 117 Curtiss, 294-8454
Business Administration—Gary Aitchison, 396A Carver, 294-8118
Design—Eino Kainlauri, 290 College of Design, 294-7112
Education—Norman Boyles, E115 Lagomarcino Hall, 294-5673
Engineering—George Burnet, 135 Sweeney, 294-2416
Home Economics—Elizabeth Elliott, 128 MacKay, 294-0863
Science & Humanities—Tom Hannum, W137 Lagomarcino Hall, 294-2119
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Office of Continuing Education

Off-Campus Credit Programs—Kathleen Stinehart, 102 Scheman Building, 294-4750
Conferences and Workshops—George Ebert, 102 Scheman Building, 294-6222